Missouri's blueprint for Safer Roadways

November 2004

Thank You
Roadway Safety Partners

Roadway safety partners from both the public and private sector contributed to the development of Missouri's Blueprint for Safer Roadways. Organizations instrumental in the creation of the document are listed below. Additional partners are needed to join forces with this group committed to reaching the State's fatality reduction goal of 1,000 or fewer fatalities by 2008. If you are interested in getting involved, contact Missouri Department of Transportation the Highway Safety Division at 800-800-2358.

American Automobile Association

Cape Girardeau Area Safe Kids Coalition

City of Jefferson City

Department of Public Safety
- Missouri State Highway Patrol
  - Information Systems Division
  - Field Operations Bureau
  - Public Information

Department of Revenue

East-West Gateway Coordinating Council

Federal Highway Administration

Federal Motor Carrier Safety Administration

Law Enforcement Traffic Safety Advisory Council (LETSAC)

Mid-America Regional Council

Missouri Association of Insurance Agents

Missouri Automobile Dealers Association

Missouri Department of Health and Senior Services
- Bureau of Health Services Statistics
- Section of Maternal, Child and Family Health

Missouri Department of Labor and Industrial Relations

Missouri Head Injury Advisory Council

Missouri Motor Carrier Association

Missouri Police Chiefs Association

Missouri Department of Transportation
- District Traffic Engineers
- Governmental Affairs Unit
- Motor Carrier Services Division
- Operations
  - Highway Safety Division
  - Traffic Division
- Public Information & Outreach
- Transportation Planning Division

Missouri Safety Center

Missouri Safety Council

Missouri Sheriffs Association

Mothers Against Drunk Driving

National Highway Traffic Safety Administration

Office of State Courts Administrator

Safe Communities Program - Cape Girardeau Police Department

Safety Council of the Ozarks

SAFE KIDS St. Louis

Think First Missouri

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Executive Summary

Missouri has lost more than 2,400 people in traffic crashes over the past two years. In addition, thousands were disabled in these tragic events during that same time period.

To address this problem, the State is participating with the American Association of State Highway Transportation Officials (AASHTO) in a national effort to reduce these preventable tragedies. "Missouri's Blueprint for Safer Roadways" is a focused document developed by utilizing a partnership approach that outlines strong opportunities to reduce fatal and serious injuries on Missouri roadways.

The Blueprint will serve as an umbrella guide to increase coordination, communication, and cooperation among state and local agencies, law enforcement, planning organizations, non-profit organizations, and other safety advocates throughout the State. The Missouri Coalition for Roadway Safety is charged with leading the statewide implementation effort to effectively deploy strategies outlined in the Blueprint. In addition, regional plans will be developed to address targeted crash problems in their respective areas.

Prior to the development of the document, more than 150 Missouri safety partners were contacted to seek ideas and input concerning a statewide reduction goal, the document content, and successful deployment strategies. The draft document was distributed to hundreds of safety partners throughout the State for comment and review. As a result of these meetings and the review process, the final Blueprint was compiled and Missouri's fatality reduction goal was set at "1,000 or fewer fatalities by 2008." This is an 18.8 percent reduction from 2003.

To attain this goal, the diverse safety community representing the engineering, enforcement, education, and emergency medical services areas must target their efforts and, in some cases, redirect their resources. We must invest in strategies that hold great promise for reducing both fatal and disabling injury crashes.

The "Essential Eight" are strategies Missouri must implement to make significant progress in reaching the projected goal. These were identified through extensive data analysis, current research findings, and best practices.

Essential Eight

- Pass a Primary Safety Belt Law and Maintain and Enhance Existing Safety Laws
- Increase Enforcement on Targeted Crash Corridors
- Increase Public Education and Information on Traffic Safety Issues
- Expand the Installation of Shoulder, Edgeline, and Centerline Rumble Strips
- Expand, Improve, and Maintain Roadway Visibility Features (i.e. markings, signs, lighting, etc.)
- Expand Installation of Median Three Strand Cable or Equivalent Barrier
- Effectively Deter, Identify, Arrest, and Adjudicate Alcohol and Other Drug Impaired Drivers and Pedestrians
- Expand Installation and Maintenance of Roadway Shoulders and Clear Zones

Introduction

Motor vehicle crashes are a serious health, economic, and social issue. It is estimated that of every 84 children born this year, one will die violently in a highway crash and 50 will be injured in a crash in their lifetime…some more than once.

Thousands of people are injured and killed on Missouri's roadways each year. Collectively, almost 75,000 persons are killed or injured in traffic crashes. This translates into one death or injury every 7 minutes. As the clock ticks, the number of persons killed or injured mounts.

- One speed-involved crash every 30 minutes
- One drinking-involved crash every 1.4 hours
- One commercial-vehicle-involved crash every 1.5 hours
- One older-driver-involved crash every 28.2 minutes
- One young-driver-involved crash every 22 minutes
- One motorcycle-involved crash every 5.8 hours
- One pedestrian-involved crash every 4.9 hours

Individually, the toll is devastating; collectively, the economic cost is more than 3.3 billion dollars per year or a daily loss of over 9 million dollars. Figures 1 and 2 show the Missouri fatal and disabling injury crash trend over the past 10 years.

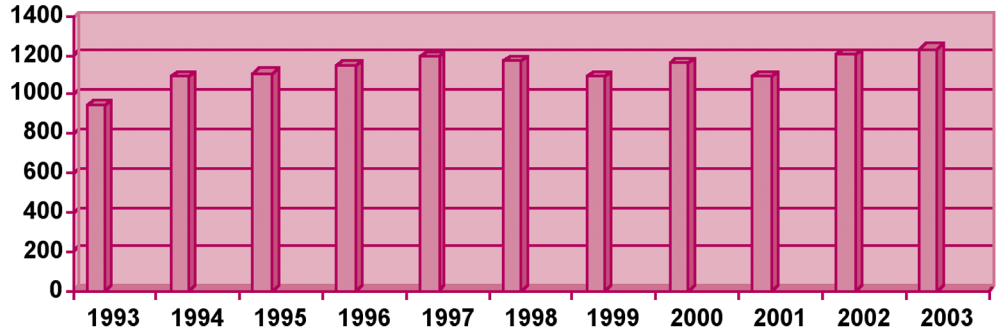

FIGURE 1 1993-2003 Missouri Traffic Fatalities

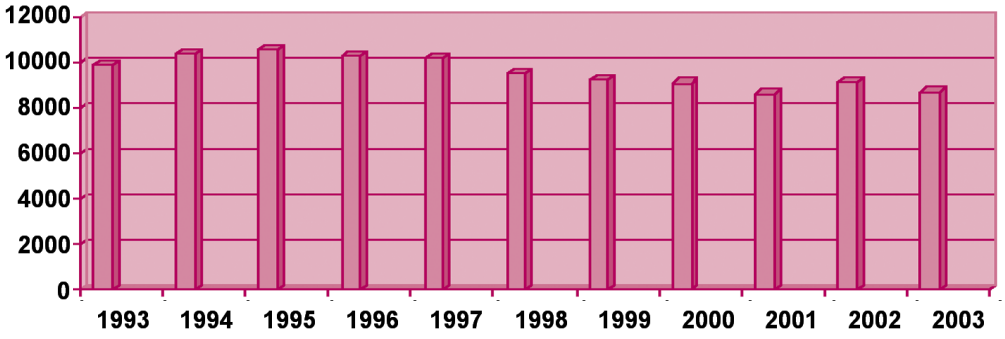

FIGURE 2 1993-2003 Missouri Traffic Crashes Disabling Injuries

Missouri's Charge / Goal

More than 1,200 people lost their lives on Missouri roadways in both 2002 and 2003. The long-range goal is to reduce that number to 1,000 or fewer deaths by 2008. As a result of this effort, by 2008, there will be at least 200 fewer fatalities.

The initial intervention is the development and deployment of Missouri's Blueprint for Roadway Safety. This document is designed to be comprehensive, coordinated, targeted, and focused. It identifies strategies that specifically address Missouri's fatal and disabling injury crash problem. The Blueprint will serve as a guidance document for directing key safety initiatives in the state.

Missouri's Challenge

Missouri had more than 4 million licensed drivers and vehicles traveling over 69 billion miles in 2003. The key to sustaining a sound and safe roadway system is the maintenance of a strong foundation. That foundation must be composed of the following basic elements:

- A robust data collection and analysis system;
- Well-trained, informed, and equipped law enforcement and regulatory personnel;
- Well-trained and informed engineers, planners, and roadway operations and maintenance personnel;
- Well-trained and informed state, county, and city governmental agencies;
- An effective and efficient operator licensing system designed to monitor operator licensing and personal performance on the roadway system;
- An effective emergency medical and trauma system composed of well-trained and equipped personnel strategically located around the state for quick response to roadway crashes;
- A strong multidisciplinary coalition organized to identify strategies to address roadway safety problems, strategically deploy those strategies, and monitor the impact of their collective efforts;
- An effective, well coordinated multi-agency/jurisdictional incident management process and plan;
- An effective and responsive court system with well trained and informed judges, prosecutors, and other legal and support personnel;
- Roadway users' well-trained and educated in good driving behaviors, regulations, and "share the road" techniques; and
- Sound and effective roadway safety laws and ordinances.

Without these vital elements in place, the roadway safety system deteriorates in efficiency and effectiveness. Most of these foundational elements cannot be tracked directly to the prevention of crashes and injuries, however, they are critical in understanding elements of the crash problem. These elements include planning, designing, building, operating, and maintaining the roadway; verifying legal operators; controlling and documenting high risk driving behaviors; responding

appropriately to crash incidents; properly prosecuting violators; and providing quality treatment of injured victims. In addition, another key element is integrating through a strong coalition engineering, enforcement, education, and emergency medical services into a coordinated roadway safety plan.

Shared Responsibility

The responsibility for roadway safety is shared by the roadway users; federal, state, county, and local governments and elected officials; and safety advocates and non-governmental organizations.

Obtaining a license and access to the roadway system is a privilege, not a right. It begins with the roadway users who must assume the responsibility to operate their vehicles in a safe, law abiding, and courteous manner. In addition, they must use safety belts, child safety seats, approved motorcycle helmets, bicycle helmets and other personal protective equipment that help mitigate injuries in the event of a crash.

Unfortunately, each year many people die unnecessarily because they do not follow these basic principles.

Principle #1: Do not exceed posted speed limits nor drive too fast for roadway conditions.

- Speed is a factor in almost 40 percent of all fatal crashes.

Principle #2: Do not drink and drive.

- Alcohol use is involved in more than 25 percent of all fatal crashes.

Principle #3: Always wear safety belts.

- More than 60 percent of those killed in crashes were not wearing a safety belt.

Beyond the user, safe roadways are a shared responsibility among the federal, state, county, and local governments, as well as state and local elected officials. These responsibilities include roadway planning and programming, design, operation, and maintenance; enforcement of laws; driver and vehicle licensing; development of state and local safety initiatives; enactment of safety laws; and the detection of, response to, and management of the crash scene.

Key non-governmental organizations also play an important role in the development and delivery of safety programs.

This partnership between the user, federal, state, county, and local governments and elected officials, along with non-governmental organizations, has made great strides in reducing the carnage on Missouri's roadways. Since 1990, our death rate per 100 million vehicle miles of travel has dropped from 2.2 to 1.8 in spite of 17 billion additional vehicle miles traveled during that same period.

All partners agree, however, that a blueprint with clearly defined emphasis areas, targets, and strategies is now needed to achieve additional reductions in deaths and injuries for the benefit of the general public. The safety partners must now embrace the guidance provided by the Blueprint and commit to coordinate and integrate their planning, programs and, when appropriate, resources to achieve notable safety advancements.

The Blueprint

The purpose of this document is to identify strong opportunities using a partnership approach to reduce the number of fatal and disabling injuries on Missouri roadways. The Blueprint does not discuss every safety strategy currently being implemented in the state nor does it address every type of crash problem. Its focus is upon strategies that provide the greatest potential to influence a reduction in the most severe crash types, thus reducing fatal and disabling injuries. Consideration was given to an array of diverse strategies including ones from the enforcement, engineering, education, and emergency services areas as well as public policy.

There were several other key principles that guided the development of this document. They included:

- Using research, input from safety professionals, and extensive data analysis to collaboratively guide the crash-reduction strategy selection process;
- Addressing strategies that encompass the roadway and its surrounding environment, the vehicle, and the roadway user; and
- Deploying targeted strategies at both the state and regional level.

Resources are a crucial factor in the implementation and deployment of the Blueprint. The resource allocations made by each agency or organization toward these strategies will be part of a continuing analysis to determine the progress toward meeting the goal or the effectiveness of the strategies in the Blueprint.

Emphasis Areas / Targets

Through extensive data analysis, four key emphasis areas and 17 targets are identified and addressed in the Blueprint. Data used in this analysis are located in Appendices A and B. The following is a list of the key emphasis areas and targets.

- **Emphasis Area I – Serious Crash Types**
  - **Targets**
    - Run-Off-Road
    - Head-On
    - Intersection
    - Horizontal Curves
    - Trees and Utility Poles

- **Emphasis Area II – High-Risk Drivers**
  - **Targets**
    - Occupant Protection Devices – Nonuse and Misuse
    - Distracted or Fatigued
    - Aggressive Driving
    - Impaired by Alcohol or Other Drugs
    - Young Driver – Less Than 21
    - Unlicensed, Revoked, or Suspended
    - Older Driver – 65 or Older

- **Emphasis Area III – Special Vehicles**
  - **Targets**
    - Commercial Vehicles
    - Motorcycles
    - School Buses

- **Emphasis Area IV – Vulnerable Roadway Users**
  - **Targets**
    - Pedestrians
    - Bicyclists

For each of the emphasis areas and targets, consideration was given to strategies in the engineering, enforcement, public information and education, as well as public policy areas. Primarily, strategies that held the greatest potential to impact the crash problem were noted.

Essential Eight

Even though the Blueprint addresses an array of emphasis areas and targets, there are eight essential strategies the state must implement for significant progress to be made in reaching 1,000 or fewer fatalities by 2008. They involve contributions from the engineering, enforcement, education and public policy areas and were determined through extensive data analysis and a review of current research and best practices. These are identified as the "Essential Eight."

Essential Eight

- Pass a Primary Safety Belt Law and Maintain and Enhance Existing Safety Laws
- Increase Enforcement on Targeted Crash Corridors
- Increase Public Education and Information on Traffic Safety Issues
- Expand the Installation of Shoulder, Edgeline, and Centerline Rumble Strips
- Expand, Improve, and Maintain Roadway Visibility Features (i.e. markings, signs, lighting, etc.)
- Expand Installation of Median Three Strand Cable or Equivalent Barrier
- Effectively Deter, Identify, Arrest, and Adjudicate Alcohol and Other Drug Impaired Drivers and Pedestrians
- Expand Installation and Maintenance of Roadway Shoulders and Clear Zones

Available data should be carefully analyzed to strategically identify specific locations or corridors where certain treatments should have priority deployment. Policies should be reviewed to ensure that, where appropriate, treatments are implemented system wide.

Without significant progress in these areas, reduction in deaths and serious injuries will be severely compromised.

Key Emphasis Areas, Targets, and Strategies

◆ Emphasis Area I – Serious Crash Types

Several specific crash types result in numerous fatalities and disabling injuries each year. Based on data analysis, five serious crash types are of particular concern.

Serious Crash Types

- **Targets**
  - Run-Off-Road Crashes
  - Crashes on Horizontal Curves
  - Head-On Crashes
  - Crashes with Trees or Poles
  - Intersection Crashes

Collectively, these serious crash types resulted in 4,184 fatalities and 28,214 disabling injuries from 2001-2003.

Table 1 shows a three-year total for deaths and disabling injuries by each of the serious crash types. As Table 1 indicates, run-off-road and horizontal curve crashes result in the most deaths and disabling injuries.

TABLE 1

*Deaths and Disabling Injuries by Crash Type

2001-2003

Crash Type	3-Year Total Deaths	3-Year Total Disabling Injuries
Run-Off-Road	1,606	10,290
Horizontal Curves	1,205	6,878
Head-On	480	2,433
Crashes with Trees or Poles	514	3,105
Intersection Crashes	379	5,508

*Crashes can involve more than one factor (e.g., speeding, impaired by alcohol or other drugs); therefore, adding these numbers together will represent more than the total number of fatalities and disabling injuries.

Below each crash type is a three-year total for deaths and disabling injuries, a brief review of the crash problem, and a list of selected strategies.

Run-Off-Road Crashes

3-Year Total
Deaths – 1,606 Disabling Injuries – 10,290

The Problem

In Missouri, there were more than 1,600 fatalities and 10,200 disabling injuries related to run-off-the-road (ROR) crashes between 2001 and 2003. More than 40 percent of the fatalities and slightly less than 40 percent of the disabling injuries in the state are attributed to vehicles leaving the roadway. When vehicles leave the roadway, the crash severity is impacted by the roadway environment including ditches and fixed objects. The purpose of these strategies is to keep vehicles on the road and improve the safety of the shoulder and adjoining roadway environment.

Strategies

- Expand and maintain roadway visibility features
- Deploy centerline, edgeline, and shoulder rumble strips
- Implement a program to add and improve shoulders where possible and cost effective
- Train and educate roadway users to safely recover after leaving the roadway
- Maintain shoulders to eliminate edge drop-offs

Horizontal Curve Crashes

3-Year Total
Deaths – 1,205 Disabling Injuries – 6,878

The Problem

There are an estimated 10 million horizontal curves in the United States on two-lane highways alone. The average accident rate for horizontal curves is about three times that for highway tangents. In Missouri, 33 percent of all fatal and 25 percent of all disabling injury crashes in the past three years occurred along horizontal curves. A considerable number of these curve-related crashes involve single vehicles leaving the roadway and striking fixed objects or overturning.

Strategies

- Expand and maintain roadway visibility features
- Deploy centerline, edgeline, and shoulder rumble strips
- Upgrade and improve shoulder treatment
- Train and educate roadway users to properly negotiate curves
- Increase targeted enforcement on high incident corridors

Head-On Crashes

3-Year Total
Deaths – 480 Disabling Injuries – 2,433

The Problem

Nearly 15 percent of the state's fatalities and 10 percent of the state's disabling injuries are attributed to head-on crashes. Head-on crashes occur when vehicles leave their driving lanes to the left crossing either the centerline of an undivided road or the median of a divided highway. The strategies listed below keep vehicles from impacting head-on or alert drivers they are about to leave their driving lane, exposing them to head-on type crashes.

Strategies

- Deploy median three-strand cable or equivalent barrier
- Deploy centerline rumble strips
- Deploy, as appropriate, "No Passing Zone" signs
- Deploy, as appropriate, passing lanes on rural two-lane roads
- Stricter Enforcement of vehicle passing regulations
- Amend RSMo 304.016 to make passing on a solid yellow line a traffic violation
- Train and educate roadway users on passing zone markings and lanes

Crashes with Trees or Poles

3-Year Total
Deaths – 514 Disabling Injuries – 3,105

The Problem

When vehicles leave the road (ROR crashes), they are likely to strike an object. Two of the more common objects they strike are trees and poles. Crashes where a tree or pole was hit accounted for 15 percent of the fatalities and 12 percent of the disabling injuries from 2001 to 2003. Vehicles are more likely to impact an object when drivers lose control and an object is close to the road. The strategies listed below reduce the chances of an errant vehicle impacting a tree or pole.

Strategies

- As appropriate, tree removal or delineation
- As appropriate, pole relocation or delineation
- As appropriate, provide adequate clear zones
- As appropriate, shield the motorist from the tree, pole, or other fixed object

Intersection Crashes

3-Year Total
Deaths – 379 Disabling Injuries – 5,508

Focus: Signalized Intersections
Unsignalized Intersections
Highway/Rail at-Grade Crossings

The Problem

In Missouri, intersection crashes account for 11 percent of the fatalities and 21 percent of the disabling injuries. Severe crashes at signalized intersections usually are a result of non-compliance with the traffic signal. Severe crashes at unsignalized intersections occur when one or more of the vehicles are traveling at a high rate of speed upon impact. Potential causes of crashes may be sight distance issues, poor visibility and gap judgment, improper use of traffic control devices, excessive speed, and non-compliance with the traffic control devices that are present.

Severe crashes at highway/rail at-grade crossings occur when warning signs/signals are not adequate due to funding constraints for the volume of vehicular and train traffic at the crossing and/or when such signs/signals are either ignored or purposely violated.

Strategies

- Deploy the Unsignalized Intersection Strategic Plan
  - Stop approach rumble strips
  - Improve signs and visibility of the intersection
  - Improve sight distance
  - Dynamic flashing beacons
  - Install or enhance intersection lighting
- Eliminate crossing or enhance warning signs/signals at selected highway/rail at-grade crossing
- Increase enforcement of intersection violations, i.e. red light running, regulatory signs
- Upgrade signal identification to assist officers in enforcing red light violations
- Continue to deploy Operation Lifesaver programs and increase awareness of the dangers of highway/rail at-grade crossings
- Enact legislation and/or local ordinances to allow red light running cameras
- Educate roadway users on intersection traffic controls and highway/rail at-grade crossing signs/signals
- Utilize proper planning and design of access to public roadways

◆ Emphasis Area II – High-Risk Drivers

Extensive data analysis identified several high-risk driver categories that are posing significant problems. The following drivers are of concern.

High Risk Drivers

- **Targets**
  - Nonuse of Occupant Protection Devices
  - Distracted or Fatigued Driver
  - Aggressive Driver
  - Impaired by Alcohol or Other Drugs
  - Young Driver – Less Than 21
  - Unlicensed, Revoked, or Suspended
  - Older Driver – Over 65

Table 2 shows a three-year total for roadway deaths and disabling injuries by high-risk driver category.

TABLE 2

*Deaths and Disabling Injuries by High Risk Driver Target

2001-2003

High-Risk Driver	3-Year Total Deaths	3-Year Total Disabling Injuries
Nonuse of Occupant Protection Devices	2,093	9,717
Distracted and Fatigued	1,119	9,422
**Aggressive Driving	1,563	10,057
Impaired by Alcohol or Other Drugs	917	4,562
Young Driver – Less Than 21	389	3,541
Unlicensed, Revoked, or Suspended	436	2,353
Older Driver – 65 or Older	371	1,464

*Crashes can involve more than one factor (e.g., speeding, impaired by alcohol or other drugs); therefore, adding these numbers together will represent more than the total number of fatalities and disabling injuries.

**Includes speeding, driving too fast for conditions and following too close (FTC).

Below each high-risk driver target is a three-year total for deaths and disabling injuries, a brief review of the crash problem, and a list of selected strategies.

Nonuse of Occupant Protection Devices

3-Year Total
Deaths – 2,093 Disabling Injuries – 9,717

Focus: Safety Belts
Child Restraint Devices

The Problem

Drivers and passengers choosing to properly use restraint devices is one of the best ways to prevent death and injury when involved in a traffic crash. According to Missouri's 2004 Safety Belt Use Observational Survey, almost 76 percent of people traveling on Missouri roadways are buckled up. Data obtained from the 2004 Child Restraint Observational Survey revealed that 77 percent of children under age four were also restrained.

Of the drivers of automobiles, pick-up trucks, vans, and motor homes killed in 2003 Missouri traffic crashes, 68.4 percent were not wearing a safety belt. Of those passengers killed in these types of vehicles, 68.6 percent were not wearing a safety belt. Seat belt usage dramatically reduces a person's chance of being killed in a traffic crash. A driver involved in a 2003 Missouri traffic crash had a 1 in 39 chance of being killed if they were not wearing a safety belt. In those cases where a driver wore a safety belt, their chance of being killed was 1 in 1,180.

Strategies

- Enact a primary safety belt law
- Educate law enforcement personnel about the primary use occupant protection component of the Graduated Driver License (GDL)
- Aggressively enforce the primary use occupant protection component of the GDL
- Aggressively enforce the primary child safety seat law
- Aggressively enforce secondary occupant protection law
- Educate GDL recipient about the mandatory safety belt use component of the law
- Educate parents, caregivers, and grandparents about proper selection and installation of child safety seats and booster seats
- Continue and expand public information and education campaigns to educate the general public and target groups about the importance of occupant protection
- Increase use of changeable message boards and signs encouraging restraint use
- Increase emphasis on special occupant protection mobilizations (public information and Strategic Traffic Enforcement Programs (S.T.E.P.) campaigns)
- Upgrade child restraint law to include booster seats

Distracted or Fatigued Driver

3-Year Total
Deaths – 1,119 Disabling Injuries – 9,422

The Problem

Driver distraction is perhaps the most challenging highway traffic safety issue today. The driver distraction of today, however, is far different than in years past. Driver distraction traditionally was a single device or stimulus (eating, tuning a radio, other passengers). Today it has diffused due to innovative technologies such as wireless telephones, internet services, navigation devices, or sophisticated entertainment centers. These multiple and more complex distractions degrade driving performance, increase risk and may lead to unintended consequences.

Every year, drowsy driving is responsible for at least 100,000 automobile crashes, 40,000 injuries, and 1,550 fatalities nationwide. A survey regarding drowsy driving indicated that over a third of drivers report having nodded off or fallen asleep at least once since they began driving. Eight percent have done so in the past six months.

Strategies

- Deploy shoulder, edgeline, and centerline rumble strips
- Expand available parking in rest areas
- Educate roadway users and employers on the dangers of distracted and fatigued driving
- Consider public and corporate policies regulating cell phone use and other electronic devices

Aggressive Driver

3-Year Total
Deaths – 1,563 Disabling Injuries – 10,057

Focus: Speeding
Driving too fast for conditions
Following too close

The Problem

Volume 1 of the National Cooperative Highway Research Program (NCHRP) Report 500, defines "aggressive driving" as operating a motor vehicle in a selfish, pushy, or impatient manner, often unsafely, that directly affects other drivers. Perceptions among law enforcement and the motoring public are that aggressive driving is becoming more prevalent. In 2003, speed, driving too fast for conditions, and following too closely collectively contributed to 46.2 percent of fatal traffic crashes in Missouri.

Strategies

- Expand use of speed monitoring and changeable message signs
- Enhance targeted corridor and selective traffic enforcement program (S.T.E.P.) efforts
- Educate roadway users on the dangers of aggressive driving and the rules of the road
- Minimize impact to the motorist due to work zones (e.g. delay, space reduction)
- Expand speed enforcement in work zones

Impaired by Alcohol or Other Drugs

3-Year Total
Deaths – 917 Disabling Injuries – 4,562

The Problem

It is estimated that three of every 10 Americans will be involved in an alcohol-related traffic crash at some time in their lives. Despite all the attention, resources, and public policies that have been directed toward removing the impaired driver from behind the wheel of a motor vehicle, in 2003 alcohol or other drugs contributed to 25.6 percent of the fatal traffic crashes in Missouri. A total of 314 persons were killed and 1,445 were injured in alcohol & drugs-related traffic crashes in 2003.

Strategies

- Increase the number of sobriety checkpoints
- Make participation in the DWI Tracking System mandatory
- Increase special DWI enforcement and mobilizations (saturation, wolf pack, S.T.E.P., and Hazardous Moving Violations (HMV) with DWI target)
- Improve the DWI process and conviction rate
- Further encourage cooperation between regional safety partners to identify target locations, times, etc. for enforcement efforts
- Continue to educate the general public, business owners, and alcohol servers on the dangers of impaired driving
- Develop and implement a statewide alcohol education and enforcement program
- Maintain and enhance impaired driving laws
- Expand use of breath alcohol ignition interlock device

Young Drivers – Less Than 21

3-Year Total
Deaths – 389 Disabling Injuries – 3,541

The Problem

Nationally, young drivers are substantially overrepresented in traffic crashes. They account for 10.5 percent of all licensed drivers' but are involved in 31 percent of all traffic crashes. Three factors work together to make these early driving years so deadly. They include: inexperience, risk-taking behavior (speeding, not using safety belts), and greater risk exposure (teen passengers, alcohol use).

In Missouri, 15-20 year old drivers represent the largest percent of fatalities in several crash and high-risk driver types. They include: head-on interstate, horizontal curve, run-off road, non safety belt use, speed exceeded limit, too fast for condition, and collision with tree and utility pole.

Strategies

- Strict enforcement of Graduated Driver License (GDL) Law (occupant protection, curfew, etc.)
- Enhance the Graduated Driver License Law to include passenger restriction, stricter curfew, and increase the number of supervised driving hours
- Expand the availability of new or novice driver education programs including incorporating driver education components into existing curriculums, web-based education, etc.
- Educate young and novice roadway users on all aspects of driving safety
- Expand enforcement targeting young drivers

Unlicensed, Revoked, or Suspended

3-Year Total
Deaths – 436 Disabling Injuries – 2,353

The Problem

Although a majority of drivers obey laws and enforcement actions intended to reduce illegal driving, there are those who continue to drive without proper licensure. They include drivers whose driving privilege has been suspended or revoked and drivers who have never received a license. In 2003, unlicensed, revoked, and suspended drivers collectively were involved in 12.6 percent of fatal traffic crashes in Missouri.

Strategies

- Develop an unlicensed, revoked, or suspended driver identification list for distribution to local law enforcement
- Conduct safety checkpoints in high-risk areas
- Consider public policy or administrative rules to identify and/or restrict the unlicensed, revoked, or suspended driver; e.g. impound vehicle, impound license plate, increase sanctions, etc.

Older Driver – 65 or Older

3-Year Total
Deaths – 371 Disabling Injuries – 1,464

The Problem

According to the 2000 Census, Missouri ranked 14th nationally with 13.5 percent of the population age 65 or older. A 62 percent increase is expected in this age group between 2005 and 2025 from 774,000 to 1,258,000. Of all 2003 Missouri traffic crashes, more than 12 percent involved drivers 65 years of age or older. Almost 71 percent of fatal older driver crashes occurred in rural areas.

Strategies

- Expand implementation of the Older Driver Highway Design Handbook
- Expand and maintain roadway visibility features
- Provide older driver self-assessment driving tool during license renewal
- Educate older drivers and their family and friends about the driving risks associated with certain prescription drugs and physical conditions
- Investigate enhanced driver license testing procedures

◆ Emphasis Area III – Special Vehicles

Three types of vehicles were of special interest in the Blueprint. Crashes involving these vehicles often pose increased risk of fatal or serious injuries or are high visibility crashes.

Special Vehicles

- **Targets**
  - Commercial Vehicles
  - Motorcycles
  - School Buses

A three-year total of deaths and disabling injuries by special vehicle is located in Table 3.

TABLE 3

*Deaths and Disabling Injuries by Special Vehicle

2001-2003

Special Vehicle	3-Year Total Deaths	3-Year Total Disabling Injuries
Commercial Vehicles	513	2,064
Motorcycles	202	1,379
School Buses	10	95

*Crashes can involve more than one factor (e.g., speeding, impaired by alcohol or other drugs); therefore, adding these numbers together will represent more than the total number of fatalities and disabling injuries.

Below each special vehicle type is a three-year total for deaths and disabling injuries, a brief review of the crash problem, and a list of selected strategies.

Commercial Vehicles

3-Year Total
Deaths – 513 Disabling Injuries – 2,064

The Problem

The number of commercial motor vehicles (trucks having gross vehicle weight ratings of 10,001 pounds or more) occupying our nation's roadways is increasing. Of all 2003 Missouri traffic crashes, 7.7 percent involved a commercial motor vehicle. Of all fatal traffic crashes, 14.3 percent involved a commercial motor vehicle. Over the past three years, a total of 513 persons were killed and 2,064 received disabling injuries in commercial motor vehicle crashes.

Strategies

- Identify high-crash corridors and initiate appropriate engineering and enforcement interventions
- Offer Commercial Vehicle fatigue management program, e.g. "Master Alertness Program"
- Implement the integrated commercial data collection and analysis system.
- Aggressive identification of carriers with unsafe practices (SafeStat), e.g. hours of service, drug & alcohol, unqualified drivers, etc.
- Educate roadway users, motor carriers and the agriculture community on commercial vehicle performance, visibility, and regulations including the No-Zone Program, hazardous materials, Highway Watch, etc.

Motorcycles

3-Year Total
Deaths – 202 Disabling Injuries – 1,379

The Problem

The outcome of a crash involving a motorcycle can often be devastating. It is estimated that 20 percent of passenger vehicle crashes result in injury or death, while an astounding 80 percent of motorcycle crashes result in injury or death. Missouri traffic crashes involving a motorcycle have increased steadily from 0.8 percent in 2001 to 1.0 percent in 2003. Over this three-year period, 202 motorcyclists were killed and 1,379 received disabling injuries. There was a 72 percent increase in motorcycle fatalities in Missouri between 2001 and 2003.

Strategies

- Aggressive enforcement of all-rider helmet law including citations for nonconforming helmets
- Maintain and enhance the penalties of the all-rider helmet law
- Expand Missouri Motorcycle Rider Education Programs
- Increase number of programs designed to discourage drinking and biking, e.g. Ride Straight Program
- Educate roadway users on motorcycle performance, visibility, etc.
- Prohibit the sale of helmets that fail to meet FMVSS 218 performance requirements

School Buses

3-year Total
Deaths – 10 Disabling Injuries – 95

The Problem

In Missouri, school bus crashes rarely occur. Those crashes seldom result in fatal or disabling injuries. Severe crashes that involve school buses are usually well covered by the media. Crashes involving a vehicle as visible as a school bus are often a result of other drivers driving too fast for conditions or not paying attention.

Strategies

- Enforcement of stop arm/signal violation
- Educate school bus drivers and riders about school bus safety
- Implement passenger restraint systems as appropriate
- Better alert drivers of upcoming school bus stop locations by using interactive devices

◆ Emphasis Area IV – Vulnerable Roadway Users

Statistics show that 40 percent of the population does not have a driver's license. This means thousands of Missourians rely on non-motorized transportation options such as walking and bicycling. While both forms of transportation have the potential to provide physical and health benefits, they also have the potential for serious or fatal injuries if involved in a crash.

Pedestrians and bicyclists alike need to understand that they have primary responsibility for their own safety. The motoring public also has a responsibility to share the road in a safe manner with these vulnerable road users.

As expected, when a pedestrian or bicyclist is involved in a traffic crash, the potential for harm is much greater among these vulnerable road users. In fact, 94 percent of the pedestrian-involved crashes and 84 percent of the bicycle-involved crashes result in injury or death to the vulnerable user.

Vulnerable Roadway User

- **Targets**
  - Pedestrian
  - Bicyclist

Table 4 displays a three-year total of death and disabling injuries by vulnerable road user category.

TABLE 4

*Deaths and Disabling Injuries by Vulnerable Road User

2001-2003

Vulnerable Roadway Users	3-Year Total Deaths	3-Year Total Disabling Injuries
Pedestrian	253	1,072
Bicyclist	29	291

*Crashes can involve more than one factor (e.g., speeding, impaired by alcohol or other drugs); therefore, adding these numbers together will represent more than the total number of fatalities and disabling injuries.

Below each vulnerable road user target is a three-year total for deaths and disabling injuries, a brief review of the crash problem, and a list of selected strategies.

Pedestrian

3-Year Total
Deaths – 253 Disabling Injuries – 1,072

The Problem

Of all 2003 Missouri traffic crashes, 0.9 percent involved a pedestrian. Of all fatal traffic crashes, 7.3 percent involved a pedestrian. A total of 80 persons were killed and 1,461 were injured in traffic crashes involving a pedestrian in 2003. Of all pedestrian traffic crashes, 78.0 percent occurred in an urban area of the state and 22 percent occurred in rural areas.

Strategies

- Improve lighting in selected urban locations
- Improve pedestrian signs and road markings
- Enhance intersection and roadway design to be more pedestrian friendly
- Implement an awareness campaign emphasizing the risks to pedestrians on high volume/speed roadways resulting from disabled vehicle, motorist assist, crossing multi-lanes, etc.
- Increase pedestrian safety education programs in schools

Bicyclist

3-Year Total
Deaths – 29 Disabling Injuries – 291

The Problem

Of all 2003 Missouri traffic crashes, 0.4 percent involved a bicycle. Of all fatal traffic crashes, 0.7 percent involved a bicycle. The majority of bicycle fatalities, 45 percent, are children14 years of age or under. Of the total bicycle crashes, 73.8 percent occurred between April and September. Of all bicycle riders involved in traffic crashes, 82.9 percent were male and l7.1 percent were female.

Strategies

- Increase bicycle safety educational programs in the elementary schools
- Encourage communities to enact local mandatory bicycle helmet use ordinances
- Increase enforcement of bicycle laws
- Increase bicycle helmet distribution programs

Summary Tables

Table 5 (page 29) depicts a summary of the strategies identified in the document by emphasis area and target. These strategies are placed into the categories of engineering, enforcement, education, emergency medical services, and public policy or other.

An estimate of the number of lives that may be saved through strategic deployment of the Essential Eight is located in Table 6 (page 41).

Implementation

Missouri's Blueprint for Safer Roadways is a collective effort of the Missouri Coalition for Roadway Safety and safety professionals throughout the state. The Missouri Coalition for Roadway Safety will lead the charge to implement the Blueprint and encourage safety partners to focus their safety activities and programs in support of the "Essential Eight" and subsequent emphasis areas, targets, and strategies.

Regional enforcement, engineering, and other safety partners are encouraged to meet on a regular basis and utilize local crash data to target and discuss problem locations, integrate safety planning, enhance communication and coordination between agencies, and monitor roadway safety progress. Regional safety plans are to be developed to strategically address local crash problems.

Proposed Funding

Partnership agencies should review current safety expenditures and, as appropriate, redirect funds or enhance spending in support of the Blueprint. Coordinating funds from multiple agencies to expand the scope of a single, larger safety initiative such as a statewide public information and education campaign is encouraged.

Evaluation

The impact of the Blueprint will be evaluated through both impact and process evaluation. Ultimately, the key measure will be the reduction in the number of fatal and disabling injuries, as well as, reaching the 2008 statewide fatality reduction goal.

In addition, several process issues will be monitored and measured.

- The increase in the amount of funding for safety projects.
- The increase in the amount of roadway miles with shoulder rumble strips.
- The increase in the amount of roadway miles with edgeline rumble strips.
- The increase in the amount of roadway miles with centerline rumble strips.
- The increase in the amount of roadway miles with three strand cable or equivalent intervention addressing multi-lane cross over crashes.
- The increase in the amount of roadway miles with new, expanded, or enhanced shoulders.
- The increase in the number of sobriety checkpoints.
- The increase in the number of agencies participating in enhanced enforcement efforts.
- The increase in the number of tickets written for high risk driving behaviors.
- Increase in the safety belt use rate on Missouri roadways.
- Passage of a Primary Safety Belt Law.
- Maintenance of the All-Rider Motorcycle Helmet Law.
- Enhancement of existing safety laws.
- The decrease in the number of fatalities and disabling injuries to individual under 21.
- Improvement in the DWI conviction rate.
- Development and deployment of a statewide alcohol education program.
- Increase in the number of breath alcohol ignition interlocks installed.

Conclusions

Shared responsibility and partnerships are critical elements in meeting the fatality reduction goal. Increased communication, coordination, and cooperation between key state, regional, and local agencies; safety organizations; and safety advocates must guide the implementation and deployment of the strategies outlined in the Blueprint.

Next Steps

The Missouri Coalition for Roadway Safety will lead the development of an implementation plan to effectively deploy the strategies outlined in the Blueprint. The state will also be divided into 10 regions (see map below). Each region will be asked to develop and deploy a Regional Roadway Safety Blueprint. These Blueprints should be data driven and developed in partnership with representatives from the engineering, enforcement, education, and emergency medical services areas as well as local policy makers and safety advocates.

The process should systematically coordinate key safety partners to address regional crash problems. Appendix C displays a sample of data that will be provided to each region to assist in the development of these Regional Blueprints.

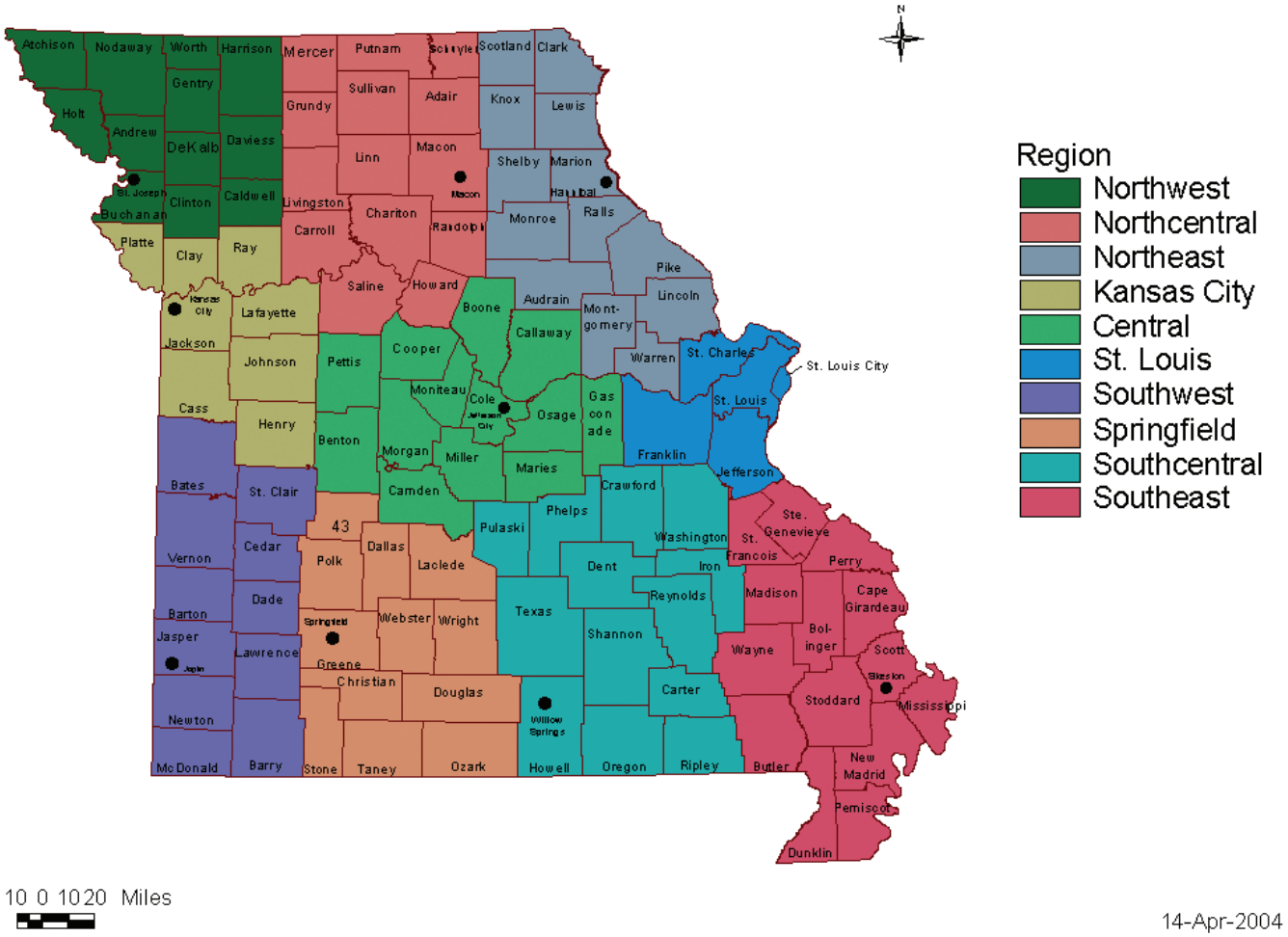

TABLE 5
Summary of Safety Strategies by Emphasis Area

Emphasis Area I	Serious Crash Types				
	Engineering	**Enforcement**	**Education**	**EMS**	**Public Policy and Other**
Run-Off -Road	Expand and maintain roadway visibility features		Train and educate roadway users to safely recover after leaving the roadway		
	Deploy centerline, edgeline, and shoulder rumble strips				
	Implement a program to add and improve shoulders where possible and cost effective				
	Maintain shoulders to eliminate edge drop-offs				
Horizontal Curve Crashes	Expand and maintain roadway visibility features	Increase targeted enforcement on high incident corridors	Train and educate roadway users to properly negotiate curves		
	Deploy centerline, edge line and shoulder rumble strips				
	Upgrade and improve shoulder treatment				

TABLE 5 *(continued)*
Summary of Safety Strategies by Emphasis Area

Emphasis Area I *(continued)*	Serious Crash Types				
	Engineering	**Enforcement**	**Education**	**EMS**	**Public Policy and Other**
Head-On Crashes	Deploy median three strand cable or equivalent barrier	Stricter enforcement of vehicle passing regulations	Train and educate roadway users on the meaning of and proper use of passing zone markings and lanes		Amend RSMo 304.016 to make passing on a solid yellow line a traffic violation
	Deploy centerline rumble strips				
	Deploy, as appropriate, "No Passing Zone" signs				
	Deploy, as appropriate, passing lanes on rural two lane roads				
Crashes with Trees and Poles	As appropriate, tree removal or delineation				
	As appropriate, pole relocation or delineation				
	As appropriate, provide adequate clear zones				
	As appropriate, shield the motorist from the tree or pole				

TABLE 5 *(continued)*
Summary of Safety Strategies by Emphasis Area

Emphasis Area I *(continued)*	**Serious Crash Types**				
	Engineering	**Enforcement**	**Education**	**EMS**	**Public Policy and Other**
Intersection Crashes • **signalized** • **unsignalized** • **highway/rail grade crossings**	Deploy the Unsignalized Intersection Strategic Plan	Increase enforcement of intersection violations, e.g. red light running, regulatory sign	Continue to deploy Operation Lifesaver programs and increase awareness of the dangers of highway/rail at-grade crossings generally		Enact legislation and/or local ordinances to allow red light running cameras
	Close or enhance warning signs/signals at selected rail grade crossings		Educate roadway users on intersection traffic controls and highway/rail at-grade crossing signs/signals		
	Upgrade signal identification to assist officers in enforcing red light violations				
	Utilize proper planning and design of access to public roadways				

TABLE 5 *(continued)*
Summary of Safety Strategies by Emphasis Area

Emphasis Area II	High-Risk Drivers				
	Engineering	**Enforcement**	**Education**	**EMS**	**Public Policy and Other**
Nonuse of Occupant Protection Devices • ***safety belts*** • ***child restraints***	Use changeable message boards and signs encouraging restraint use	Aggressively enforce the primary use occupant protection component of the GDL	Educate law enforcement personnel about the primary use occupant protection component of the GDL		Increase emphasis on special occupant protection mobilizations (public information and enforcement campaigns)
		Aggressively enforce the primary child safety seat law	Educate GDL recipient about the mandatory safety belt use component of the law		Enact Primary Safety Belt Law
		Aggressively enforce secondary occupant protection law	Educate parents, caregivers, and grandparents about proper selection and installation of child safety seats and booster seats		Upgrade child restraint law to include booster seats
			Continue to expand public information and education campaigns to educate the general public and target groups about the importance of occupant protection		

TABLE 5 *(continued)*
Summary of Safety Strategies by Emphasis Area

Emphasis Area II *(continued)*	High-Risk Drivers				
	Engineering	**Enforcement**	**Education**	**EMS**	**Public Policy and Other**
Distracted or Fatigued Driver	Deploy shoulder, edgeline, and centerline rumble strips		Educate roadway users and employers on the dangers of distracted and fatigued driving		Consider public and corporate policies regulating cell phone use and other electronic devices
					Expand available parking in rest areas
Aggressive Driver • ***speeding*** • ***driving too fast for conditions*** • ***following too close***	Expand use of speed monitoring and changeable message signs	Enhance targeted corridor and selective traffic enforcement program (S.T.E.P.) efforts	Educate roadway users on the dangers of aggressive driving and the rules of the road		
	Minimize impact to the motorist due to work zones	Expand speed enforcement in work zones			

TABLE 5 *(continued)*
Summary of Safety Strategies by Emphasis Area

Emphasis Area II *(continued)* High-Risk Drivers					
	Engineering	**Enforcement**	**Education**	**EMS**	**Public Policy and Other**
Impaired by Alcohol or Other Drugs		Increase the number of sobriety checkpoints	Continue to educate the general public, business owners, and alcohol servers on the dangers of impaired driving		Make participation in DWI Tracking System mandatory
		Further encourage cooperation between regional safety partners to identify target locations, times, etc. for enforcement efforts			Improve the DWI process and conviction rate
		Increase special DWI enforcement and mobilizations (saturation, wolf pack, S.T.E.P. and HMV with DWI target)			Develop and implement a statewide alcohol education and enforcement program
					Maintain and enhance impaired driving laws
					Expand use of breath alcohol interlock

TABLE 5 *(continued)*
Summary of Safety Strategies by Emphasis Area

Emphasis Area II *(continued)* High-Risk Drivers					
	Engineering	**Enforcement**	**Education**	**EMS**	**Public Policy and Other**
Young Driver – Less than 21		Strict enforcement of GDL Law (e.g. curfew, safety belt, etc.)	Expand the availability of novice driver education programs (e.g. driver ed classes or web based, etc.)		Enhance GDL Law to include passenger restriction, stricter curfew, and increase the number of supervised driving hours
		Expand enforcement targeting young drivers	Educate young and novice roadway users on all aspects of driving safety		
Unlicensed, Revoked, or Suspended Driver		Conduct safety checkpoints in high risk areas			Develop an unlicensed, revoked, or suspended driver identification list for distribution to local law enforcement
					Consider public policy or administrative rules to identify and/or restrict the unlicensed, revoked, or suspended driver, (e.g. impound vehicles or license plate, increase sanctions, etc.

TABLE 5 *(continued)*
Summary of Safety Strategies by Emphasis Area

Emphasis Area II *(continued)*	**High-Risk Drivers**				
	Engineering	**Enforcement**	**Education**	**EMS**	**Public Policy and Other**
Older Driver – 65 or Older	Expand implementation of the "Older Driver Highway Design Handbook"		Educate older drivers and their family and friends about the risks associated with certain prescription drugs and physical conditions		Provide an older driver self-assessment driving tool during license renewal
	Expand and maintain roadway visibility features				Investigate enhanced driver license testing procedures

TABLE 5 *(continued)*
Summary of Safety Strategies by Emphasis Area

Emphasis Area III	Special Vehicles				
	Engineering	**Enforcement**	**Education**	**EMS**	**Public Policy and Other**
Commercial Vehicles	Identify high crash corridors and initiate appropriate engineering interventions	Identify high crash corridors and initiate appropriate enforcement interventions	Offer commercial vehicle fatigue management program, e.g. "Master Alertness Program"		Implement the integrated commercial data collection and analysis system
		Aggressive identification of carriers with unsafe safety practices (SafeStat), e.g. hours of service, drug & alcohol, unqualified drivers, etc.	Educate roadway users, motor carriers and the agriculture community on commercial vehicle performance, visibility, and regulations including the No-Zone Program, hazardous materials, Highway Watch, etc.		

TABLE 5 *(continued)*
Summary of Safety Strategies by Emphasis Area

Emphasis Area III *(continued)* Special Vehicles					
	Engineering	**Enforcement**	**Education**	**EMS**	**Public Policy and Other**
Motorcycles		Aggressive enforcement of helmet law including citations for nonconforming helmets	Expand Motorcycle Rider Education Program		Maintain and enhance the penalties of the all-rider helmet law
			Increase number of programs designed to discourage drinking and biking, (e.g. Ride Straight Program)		Prohibit the sale of helmets that fail to meet FMVSS 218 performance requirements
			Educate roadway users on motorcycle performance, visibility, etc.		
School Buses		Enforce stop arm and signal violations	Educate roadway users about school bus regulations		Implement passenger restraint systems, as appropriate
			Educate school bus drivers and riders about school bus safety		

TABLE 5 *(continued)*
Summary of Safety Strategies by Emphasis Area

Emphasis Area IV	Vulnerable Roadway Users				
	Engineering	**Enforcement**	**Education**	**EMS**	**Public Policy and Other**
Pedestrian	Improve lighting in selected urban locations		Implement an awareness campaign emphasizing the risks to pedestrians on high volume/speed roadways resulting from disabled vehicle, motorist assist, crossing multi-lanes, etc.		
	Improve pedestrian signs and road markings		Increase pedestrian safety education programs in schools		
	Enhance intersection and roadway design to be more pedestrian friendly				
Bicyclist		Increase enforcement of bicycle laws	Increase bicycle safety education programs in elementary schools		Encourage communities to enact local mandatory bicycle helmet use ordinances
					Increase bicycle helmet distribution programs

TABLE 6
*Estimated Lives Saved by Deployment of Essential Eight

Essential Eight	*Estimated Lives Saved (Annual)
Pass Primary Seat Belt Law	89
Increase Enforcement on Targeted Crash Corridors	Unknown
Increase Public Education and Information on Traffic Safety Issues	Unknown
Expand the Installation of Shoulder, Edgeline, and Centerline Rumble Strips	65
Expand, Improve, and Maintain Roadway Visibility Features	
A. Expand Installation of Warning Signs for Curves	34
B. Expand Installation of Pavement Conditions Signs	4
C. Expand Installation of Flashing Beacons @ Intersections	22
D. Expand Installation of Lighting at Intersections & Curves	32
E. Expand Installation of Edgeline Stripping	15
Expand Installation of Median Three Strand Cable or Equivalent Barrier on Divided Facilities	34
Effectively Deter, Identify, Arrest, and Adjudicate Alcohol and Other Drug Impaired Drivers and Pedestrians	Unknown
Expand Installation and Maintenance of Roadway Shoulders and Clear Zones	22

*Each estimate is exclusive of the others and is not additive.

Appendix A

Total Fatalities and Disabling Injuries by Target Area 2001-2003

Description	Total Fatalities
Nonuse of Occupant Protection Devices	2,093
Run-Off-Road Collisions	1,606
Aggressive Driving Conditions	
• Following too close	(70)
• Too fast for conditions	(876)
• Speed exceeded limit	(618)
TOTAL for 3 conditions	1,564
Horizontal Curves	1,205
Distracted/Fatigued Drivers	1,119
Alcohol and Other Drugs	917
Commercial Vehicles	513
Head-On Collisions	439
Unlicensed Drivers	436
Collisions w/Trees	423
Young Drivers – Less than 21	389
Unsignalized Intersection Collisions	375
Older Drivers – 65 or older	371
Pedestrian	253
Motorcyclists	202
Signalized Intersection Collisions	104
Collisions with Utility Poles	91
Work-Zone	71
Head-On Crashes on Interstate	41
Bicyclists	29
School Buses	10

Description	Total Disabling Injuries
Run-Off-Road Collisions	10,290
Aggressive Driving Conditions	
• Following too close	(1,549)
• Too fast for conditions	(6,513)
• Speed exceeded limit	(1,995)
TOTAL for 3 Conditions	10,057
Nonuse of Occupant Protection Devices	9,717
Distracted/Fatigued Drivers	9,422
Horizontal Curves	6,878
Alcohol and Other Drugs	4,687
Young Drivers – Less than 21	3,541
Unsignalized Intersection Collisions	3,497
Collisions w/Trees	2,377
Unlicensed Drivers	2,353
Head-On Collisions	2,325
Commercial Vehicles	2,064
Signalized Intersection Collisions	2,011
Older Drivers – 65 or older	1,464
Motorcyclists	1,379
Pedestrian	1,072
Collisions with Utility Poles	728
Work-Zone	404
Bicyclists	291
Head-On Crashes on Interstate	108
School Buses	95

Appendix B

Total Fatalities by Age
2001-2003

Age	Fatalities	Percent of Total Fatalities
15-20	596	16.84
*>=66	539	15.23
21-25	432	12.21
36-40	300	8.48
41-45	274	7.74
26-30	260	7.35
31-35	252	7.12
46-50	248	7.01
**<=14	172	5.34
51-55	189	4.86
56-60	156	4.41
61-65	114	3.22
Unknown	7	0.19
Total	**3,539**	**100.00**

*Greater than or equal to 66 **Less than or equal to 14

Fatalities by Age by Target Area
2001-2003

Alcohol & Other Drugs
Fatalities By Age
(2001-2003)

Age	Fatalities	Fatalities/ Total Fatalities (%)
21-25	201	21.43
15-20	139	14.82
36-40	116	12.34
31-35	113	12.05
41-45	98	10.45
26-30	85	9.06
46-50	70	7.46
51-55	43	4.58
>=66	26	2.77
56-60	21	2.24
<=14	13	1.39
61-65	12	1.28
unknown	1	0.11
Total	**938**	**100.00**

Bicyclist
Fatalities By Age
(2001-2003)

Age	Fatalities	Fatalities/ Total Fatalities (%)
<=14	13	44.82
15-20	4	13.78
36-40	2	6.90
56-60	2	6.90
21-25	2	6.90
>=66	2	6.90
46-50	2	6.90
26-30	1	3.45
61-65	1	3.45
41-45	0	0.00
31-35	0	0.00
51-55	0	0.00
unknown	0	0.00
Total	**29**	**100.00**

Fatalities by Age by Target Area *(continued)*
2001-2003

Distracted/Fatigued Fatalities By Age
(2001-2003)

Age	Fatalities	Fatalities/ Total Fatalities (%)
>=66	197	17.61
15-20	162	14.48
21-25	131	11.71
36-40	86	7.69
41-45	86	7.69
46-50	74	6.61
26-30	73	6.52
<=14	69	6.17
51-55	69	6.17
31-35	68	6.08
56-60	56	5.00
61-65	43	3.84
unknown	5	0.43
TOTAL	**1,119**	**100.00**

Following Too Close Fatalities By Age
(2001-2003)

Age	Fatalities	Fatalities/ Total Fatalities (%)
>=66	16	22.86
15-20	7	10.00
51-55	7	10.00
21-25	6	8.57
31-35	6	8.57
<=14	5	7.14
61-65	5	7.14
46-50	5	7.14
36-40	4	5.71
26-30	4	5.71
41-45	3	4.29
56-60	2	2.87
unknown	0	0.00
TOTAL	**70**	**100.00**

Head-On Fatalities By Age
(2001-2003)

Age	Fatalities	Fatalities/ Total Fatalities (%)
>=66	86	19.59
15-20	61	13.90
36-40	48	10.93
21-25	46	10.48
41-45	33	7.52
26-30	29	6.61
56-60	29	6.61
46-50	29	6.61
31-35	28	6.37
51-55	23	5.24
61-65	15	3.42
<=14	12	2.72
unknown	0	0.00
TOTAL	**439**	**100.00**

Head-On Interstate Fatalities By Age
(2001-2003)

Age	Fatalities	Fatalities/ Total Fatalities (%)
21-25	6	14.63
26-30	6	14.63
15-20	6	14.63
46-50	5	12.20
<=14	4	9.75
41-45	4	9.75
>=66	3	7.32
36-40	2	4.88
51-55	2	4.88
61-65	2	4.88
31-35	1	2.45
56-60	0	0.00
unknown	0	0.00
TOTAL	**41**	**100.00**

Fatalities by Age by Target Area *(continued)*
2001-2003

Commercial Vehicles Fatalities By Age
(2001-2003)

Age	Fatalities	Fatalities/ Total Fatalities (%)
>=66	90	17.54
15-20	72	14.04
21-25	57	11.11
36-40	46	8.97
26-30	44	8.58
46-50	42	8.19
31-35	36	7.02
51-55	31	6.04
56-60	31	6.04
41-45	28	5.46
61-65	21	4.09
<=14	14	2.73
unknown	1	0.19
Total	**513**	**100.00**

Horizontal Curve Fatalities By Age
(2001-2003)

Age	Fatalities	Fatalities/ Total Fatalities (%)
15-20	205	17.00
21-25	174	14.43
36-40	120	9.95
>=66	118	9.78
41-45	106	8.79
31-35	103	8.54
46-50	95	7.88
26-30	91	7.55
51-55	71	5.89
<=14	51	4.23
56-60	44	3.65
61-65	28	2.32
unknown	0	0.00
Total	**1,206**	**100.00**

Motorcyclist Fatalities By Age
(2001-2003)

Age	Fatalities	Fatalities/ Total Fatalities (%)
41-45	26	12.87
46-50	25	12.38
36-40	24	11.88
26-30	23	11.39
21-25	21	10.39
31-35	20	9.90
51-55	20	9.90
15-20	16	7.92
>=66	10	4.95
56-60	8	3.96
61-65	7	3.47
<=14	2	0.99
unknown	0	0.00
Total	**202**	**100.00**

Pedestrian Fatalities By Age
(2001-2003)

Age	Fatalities	Fatalities/ Total Fatalities (%)
>=66	38	15.02
<=14	28	11.07
31-35	27	10.67
36-40	27	10.67
21-25	25	9.88
46-50	24	9.49
15-20	20	7.91
41-45	18	7.11
51-55	15	5.93
56-60	12	4.94
61-65	9	3.56
26-30	9	3.56
unknown	1	0.40
Total	**253**	**100.00**

Fatalities by Age by Target Area *(continued)*
2001-2003

Run-Off Road Fatalities By Age
(2001-2003)

Age	Fatalities	Fatalities/ Total Fatalities (%)
15-20	312	19.43
21-25	241	15.01
>=66	166	10.34
41-45	143	8.90
36-40	139	8.66
31-35	131	8.16
26-30	125	7.78
46-50	115	7.16
51-55	78	4.86
56-60	61	3.80
<=14	54	3.36
61-65	37	2.30
unknown	4	0.25
TOTAL	**1,606**	**100.00**

No Safety Belt Use Fatalities By Age
(2001-2003)

Age	Fatalities	Fatalities/ Total Fatalities (%)
15-20	400	19.11
21-25	304	14.52
>=66	235	11.23
36-40	177	8.46
41-45	171	8.17
26-30	169	8.07
31-35	167	7.98
46-50	144	6.88
51-55	96	4.59
<=14	88	4.20
56-60	84	4.01
61-65	52	2.48
unknown	6	0.29
TOTAL	**2,093**	**100.00**

Signalized Intersection Fatalities By Age
(2001-2003)

Age	Fatalities	Fatalities/ Total Fatalities (%)
>=66	30	28.85
15-20	13	12.50
26-30	12	11.54
41-45	10	9.62
21-25	8	7.69
51-55	6	5.77
36-40	6	5.77
46-50	5	4.80
<=14	4	3.85
31-35	4	3.85
61-65	3	2.88
56-60	3	2.88
unknown	0	0.00
TOTAL	**104**	**100.00**

Speed Exceeded Limit Fatalities By Age
(2001-2003)

Age	Fatalities	Fatalities/ Total Fatalities (%)
15-20	174	28.16
21-25	110	17.80
26-30	54	8.74
31-35	54	8.74
41-45	48	7.77
36-40	45	7.28
>=66	36	5.83
46-50	29	4.69
<=14	25	4.05
51-55	18	2.90
56-60	17	2.75
61-65	7	1.13
unknown	1	0.16
TOTAL	**618**	**100.00**

Fatalities by Age by Target Area *(continued)*
2001-2003

Too Fast For Condition Fatalities By Age
(2001-2003)

Age	Fatalities	Fatalities/ Total Fatalities (%)
15-20	174	19.89
21-25	141	16.11
36-40	79	9.03
26-30	78	8.91
46-50	78	8.91
31-35	67	7.67
41-45	66	7.54
>=66	66	7.54
<=14	47	5.37
51-55	38	4.34
56-60	28	3.20
61-65	13	1.49
unknown	0	0.00
TOTAL	**875**	**100.00**

Collision w/Tree Fatalities By Age
(2001-2003)

Age	Fatalities	Fatalities/ Total Fatalities (%)
15-20	102	24.11
21-25	56	13.24
31-35	40	9.46
>=66	39	9.22
41-45	37	8.75
46-50	32	7.57
26-30	29	6.86
36-40	28	6.62
51-55	23	5.44
<=14	19	4.48
56-60	13	3.07
61-65	5	1.18
unknown	0	0.00
TOTAL	**423**	**100.00**

Unlicensed Driver Fatalities By Age
(2001-2003)

Age	Fatalities	Fatalities/ Total Fatalities (%)
21-25	86	19.72
15-20	70	16.06
36-40	53	12.16
41-45	44	10.09
31-35	39	8.94
26-30	34	7.80
<=14	30	6.88
46-50	27	6.19
51-55	20	4.59
56-60	15	3.44
>=66	13	2.98
61-65	5	1.15
unknown	0	0.00
TOTAL	**436**	**100.00**

Unsignalized Intersection Fatalities By Age
(2001-2003)

Age	Fatalities	Fatalities/ Total Fatalities (%)
>=66	96	34.90
15-20	41	14.90
21-25	21	7.60
61-65	16	5.80
<=14	15	5.50
36-40	15	5.50
41-45	15	5.50
26-30	13	4.70
46-50	13	4.70
51-55	12	4.40
56-60	12	4.40
31-35	6	2.10
unknown	0	0.00
TOTAL	275	100.00

Fatalities by Age by Target Area *(continued)*
2001-2003

Utility Pole
Fatalities By Age
(2001-2003)

Age	Fatalities	Fatalities/ Total Fatalities (%)
15-20	25	27.47
21-25	16	17.58
36-40	9	9.89
>=66	9	9.89
31-35	7	7.69
41-45	7	7.69
46-50	6	6.60
26-30	5	5.49
<=14	3	3.30
51-55	2	2.20
56-60	2	2.20
61-65	0	0.00
unknown	0	0.00
Total	**91**	**100.00**

Work Zone
Fatalities By Age
(2001-2003)

Age	Fatalities	Fatalities/ Total Fatalities (%)
>=66	14	19.72
21-25	13	18.31
36-40	7	9.86
46-50	7	9.86
31-35	6	8.45
15-20	6	8.45
51-55	5	7.04
41-45	4	5.63
56-60	4	5.63
26-30	3	4.23
61-65	2	2.82
<=14	0	0.00
unknown	0	0.00
Total	**71**	**100.00**

Appendix C

Regional Data Analysis Model
Central Region vs. State

Total Fatalities				Total Disabling Injuries			
Year	Central Region	State	Percentage	Year	Central Region	State	Percentage
2001	114	1,098	10.38%	2001	779	8,620	9.04%
2002	135	1,208	11.18%	2002	782	9,149	8.55%
2003	142	1,233	11.52%	2003	830	8,724	9.51%
Total	**391**	**3,539**	**11.05%**	**Total**	**2,391**	**26,493**	**9.03%**

Central Region
Total Fatalities and Disabling Injuries by Target 2001-2003

Description	Total Fatalities
No Safety Belt Use	223
Run-Off-Road Collisions	176
Horizontal Curves	156
Distracted/Fatigued Drivers	112
Aggressive Driving Conditions Too Fast for Conditions	103
Alcohol and Other Drugs	100
Young Drivers – Less than 21	63
Head-On Collisions	61
Heavy Trucks (Commercial Vehicles)	58
Aggressive Driving Conditions Speed Exceeded Limit	56
Collisions w/Trees	56
Unlicensed Drivers	39
Unsignalized Intersection Collisions	36
Motorcyclists	19
Older Drivers – 76+ yrs old	18
Pedestrian	17
Older Drivers – 65-75 yrs old	12
Head-On Crashes on Interstate	8
Aggressive Driving Conditions Following to Close	7
Collisions with Utility Poles	3
Bicyclists	3
Work-Zone	3
Signalized Intersection Collisions	2

Description	Total Disabling Injuries
Run-Off-Road Collisions	1,020
No Safety Belt Use	949
Distracted/Fatigued Drivers	882
Horizontal Curves	841
Aggressive Driving Conditions Too Fast for Conditions	646
Alcohol and Other Drugs	458
Young Drivers – Less than 21	328
Unsignalized Intersection Collisions	287
Head-On Collisions	273
Collisions w/Trees	269
Heavy Trucks (Commercial Vehicles)	182
Unlicensed Drivers	170
Aggressive Driving Conditions Speed Exceeded Limit	154
Motorcyclists	151
Aggressive Driving Conditions Following to Close	115
Signalized Intersection Collisions	97
Older Drivers – 65-75 yrs old	76
Pedestrian	59
Older Drivers – 76+ yrs old	47
Collisions with Utility Poles	42
Head-On Crashes on Interstate	16
Bicyclists	15
Work-Zone	12

Central Region vs. State
Fatal and Disabling Injuries by Crash Category

Pedestrian

	Fatalities	State Fatalities	Percentage	Disabling Injuries	State Disabling Injuries	Percentage
2001	6	84	7.14%	19	369	5.15%
2002	7	89	7.87%	19	375	5.07%
2003	4	80	5.00%	21	328	6.40%
Total	**17**	**253**	**6.72%**	**59**	**1,072**	**5.50%**

Motorcyclists

	Fatalities	State Fatalities	Percentage	Disabling Injuries	State Disabling Injuries	Percentage
2001	6	53	11.32%	47	405	11.60%
2002	6	58	10.34%	57	488	11.68%
2003	7	91	7.69%	47	486	9.67%
Total	**19**	**202**	**9.40%**	**151**	**1,379**	**10.95%**

Bicyclists

	Fatalities	State Fatalities	Percentage	Disabling Injuries	State Disabling Injuries	Percentage
2001	1	6	16.67%	3	90	3.33%
2002	1	15	6.67%	4	103	3.88%
2003	1	8	12.50%	8	98	8.16%
Total	**3**	**29**	**10.34%**	**15**	**291**	**5.15%**

Central Region vs. State
Fatal and Disabling Injuries by Crash Category *(continued)*

Young Drivers - Less than 21

	Fatalities	State Fatalities	Percentage	Disabling Injuries	State Disabling Injuries	Percentage
2001	19	124	15.32%	127	1,236	10.28%
2002	20	134	14.93%	97	1,218	7.96%
2003	24	131	18.32%	104	1,085	9.59%
TOTAL	**63**	**389**	**16.20%**	**328**	**3,539**	**9.27%**

Alcohol and Other Drugs

	Fatalities	State Fatalities	Percentage	Disabling Injuries	State Disabling Injuries	Percentage
2001	32	283	11.31%	155	1,503	10.31%
2002	32	320	10.00%	157	1,614	9.73%
2003	36	314	11.46%	146	1,445	10.10%
TOTAL	**100**	**917**	**10.91%**	**458**	**4,562**	**10.04%**

No Safety Belts

	Fatalities	State Fatalities	Percentage	Disabling Injuries	State Disabling Injuries	Percentage
2001	56	584	9.59%	294	2,876	10.22%
2002	86	779	11.04%	323	3,606	8.96%
2003	81	730	11.10%	332	3,234	10.27%
TOTAL	**223**	**2,093**	**10.65%**	**949**	**9,716**	**9.77%**

Central Region vs. State
Fatal and Disabling Injuries by Crash Category *(continued)*

Signalized Intersection Collisions

	Fatalities	State Fatalities	Percentage	Disabling Injuries	State Disabling Injuries	Percentage
2001	1	35	2.86%	49	689	7.11%
2002	1	42	2.38%	33	703	4.69%
2003	0	27	0.00%	15	619	2.42%
Total	**2**	**104**	**1.92%**	**97**	**2,011**	**4.82%**

Horizontal Curves

	Fatalities	State Fatalities	Percentage	Disabling Injuries	State Disabling Injuries	Percentage
2001	40	372	10.75%	274	2,124	12.90%
2002	60	400	15.00%	274	2,504	10.94%
2003	56	433	12.93%	293	2,250	13.02%
Total	**156**	**1,205**	**12.95%**	**841**	**6,878**	**12.23%**

Work Zone

	Fatalities	State Fatalities	Percentage	Disabling Injuries	State Disabling Injuries	Percentage
2001	0	22	0.00%	2	102	1.96%
2002	2	27	7.41%	9	160	5.63%
2003	1	22	4.55%	1	142	0.70%
Total	**3**	**71**	**4.23%**	**12**	**404**	**2.97%**

Central Region vs. State
Fatal and Disabling Injuries by Crash Category *(continued)*

Distracted/Fatigued Drivers

	Fatalities	State Fatalities	Percentage	Disabling Injuries	State Disabling Injuries	Percentage
2001	56	566	9.89%	472	4,983	9.47%
2002	25	261	9.58%	179	2,231	8.02%
2003	31	292	10.62%	231	2,207	10.47%
Total	**112**	**1,119**	**10.01%**	**882**	**9,421**	**9.36%**

Head-On Crashes on Interstate

	Fatalities	State Fatalities	Percentage	Disabling Injuries	State Disabling Injuries	Percentage
2001	2	12	16.67%	5	40	12.50%
2002	0	11	0.00%	4	32	12.50%
2003	6	18	33.33%	7	36	19.44%
Total	**8**	**41**	**19.51%**	**16**	**108**	**14.81%**

Central Region vs. State
Fatal and Disabling Injuries by Crash Category *(continued)*

	Fatalities	State Fatalities	Percentage	Disabling Injuries	State Disabling Injuries	Percentage
Older Drivers – 65-75 years old						
2001	4	66	6.06%	23	300	7.67%
2002	5	49	10.20%	23	278	8.27%
2003	3	59	5.08%	30	274	10.95%
Subtotal	12	174	6.90%	76	852	8.92%
Older Drivers – 76+ years old						
2001	7	57	12.28%	10	201	4.98%
2002	5	62	8.06%	15	184	8.15%
2003	6	78	7.69%	22	225	9.78%
Subtotal	18	197	9.14%	47	610	7.70%
TOTAL	**30**	**371**	**8.09%**	**123**	**1,462**	**8.41%**

Central Region vs. State
Fatal and Disabling Injuries by Crash Category *(continued)*

*Aggressive Driving Collisions						
(Speed Exceeded Limit)						
	Fatalities	**State Fatalities**	**Percentage**	**Disabling Injuries**	**State Disabling Injuries**	**Percentage**
2001	19	214	8.88%	40	646	6.19%
2002	22	193	11.40%	64	715	8.95%
2003	15	211	7.11%	50	634	7.89%
Subtotal	56	618	9.06%	154	1,995	7.72%
(Too Fast for Conditions)						
2001	22	241	9.13%	169	1,952	8.66%
2002	44	311	14.15%	220	2,345	9.38%
2003	37	323	11.46%	257	2,216	11.60%
Subtotal	103	875	11.77%	646	6,513	9.92%
(Following Too Close)						
2001	0	14	0.00%	39	482	8.09%
2002	3	20	15.00%	33	546	6.04%
2003	4	36	11.11%	40	521	7.68%
Subtotal	7	70	10.00%	112	1,549	7.23%
TOTAL	**166**	**1,563**	**10.62%**	**912**	**10,057**	**9.07%**

*Does not include multiple aggressive driving collisions

Central Region vs. State
Fatal and Disabling Injuries by Crash Category *(continued)*

Utility Poles

	Fatalities	State Fatalities	Percentage	Disabling Injuries	State Disabling Injuries	Percentage
2001	1	18	5.56%	7	166	4.22%
2002	1	35	2.86%	18	289	6.23%
2003	1	38	2.63%	17	273	6.23%
Total	**3**	**91**	**3.30%**	**42**	**728**	**5.77%**

Commercial Vehicles

	Fatalities	State Fatalities	Percentage	Disabling Injuries	State Disabling Injuries	Percentage
2001	12	151	7.95%	60	676	8.88%
2002	17	178	9.55%	57	731	7.80%
2003	29	184	15.76%	65	657	9.89%
Total	**58**	**513**	**11.31%**	**182**	**2,064**	**8.82%**

Run-Off-Road Collisions

	Fatalities	State Fatalities	Percentage	Disabling Injuries	State Disabling Injuries	Percentage
2001	52	522	9.96%	322	3,285	9.80%
2002	63	528	11.93%	333	3,615	9.21%
2003	61	556	10.97%	365	3,390	10.77%
Total	**176**	**1,606**	**10.96%**	**1,020**	**10,290**	**9.91%**

Central Region vs. State
Fatal and Disabling Injuries by Crash Category *(continued)*

Head-On Collisions

	Fatalities	State Fatalities	Percentage	Disabling Injuries	State Disabling Injuries	Percentage
2001	22	148	14.86%	100	808	12.38%
2002	15	149	10.07%	75	785	9.55%
2003	26	165	15.76%	78	804	9.70%
TOTAL	**63**	**462**	**13.64%**	**253**	**2,397**	**10.55%**

Collisions w/Trees

	Fatalities	State Fatalities	Percentage	Disabling Injuries	State Disabling Injuries	Percentage
2001	10	81	12.35%	58	474	12.24%
2002	22	172	12.79%	94	949	9.91%
2003	24	170	14.12%	117	954	12.26%
TOTAL	**56**	**423**	**13.24%**	**269**	**2,377**	**11.32%**

Unsignalized Intersection Collisions

	Fatalities	State Fatalities	Percentage	Disabling Injuries	State Disabling Injuries	Percentage
2001	7	72	9.72%	90	1,095	8.20%
2002	15	96	12.50%	93	1,187	7.83%
2003	14	107	13.08%	104	1,215	8.56%
TOTAL	**36**	**275**	**12.00%**	**287**	**3,497**	**8.21%**

Central Region vs. State
Fatal and Disabling Injuries by Crash Category *(continued)*

Unlicensed Drivers

	Fatalities	State Fatalities	Percentage	Disabling Injuries	State Disabling Injuries	Percentage
2001	10	124	8.06%	53	702	7.55%
2002	10	151	6.62%	48	866	5.54%
2003	19	161	11.80%	69	785	8.79%
TOTAL	**39**	**436**	**8.94%**	**170**	**2,353**	**7.22%**

Central Region vs. State
No Safety Belt by Target Area

Older Drivers – 65-75 years old						
	Fatalities	No Safety Belts	Percentage	Disabling Injuries	No Safety Belts	Percentage
2001	4	1	25.00%	23	4	17.39%
2002	5	4	80.00%	23	6	26.09%
2003	3	2	66.67%	30	9	30.00%
Subtotal	12	7	58.33%	76	19	25.00%
Older Drivers – 76+ years old						
2001	7	1	14.29%	10	4	40.00%
2002	5	1	20.00%	15	3	20.00%
2003	6	0	0.00%	22	3	13.64%
Subtotal	18	2	11.11%	47	10	21.28%
TOTAL	**30**	**9**	**30.00%**	**123**	**29**	**23.58%**

Head-On Collisions						
	Fatalities	No Safety Belts	Percentage	Disabling Injuries	No Safety Belts	Percentage
2001	22	11	50.00%	100	35	35.00%
2002	15	9	60.00%	75	31	41.33%
2003	26	13	50.00%	107	31	28.97%
TOTAL	**63**	**33**	**52.38%**	**282**	**97**	**34.40%**

Central Region vs. State
No Safety Belt by Target Area *(continued)*

Collisions w/Trees

	Fatalities	No Safety Belts	Percentage	Disabling Injuries	No Safety Belts	Percentage
2001	10	4	40.00%	58	30	51.72%
2002	22	13	59.09%	94	47	50.00%
2003	24	12	50.00%	117	64	54.70%
Total	**56**	**29**	**51.79%**	**269**	**141**	**52.42%**

Unsignalized Intersection Collisions

	Fatalities	No Safety Belts	Percentage	Disabling Injuries	No Safety Belts	Percentage
2001	7	0	0.00%	90	22	26.82%
2002	15	6	37.50%	93	31	33.33%
2003	14	10	62.50%	104	29	35.36%
Total	**36**	**16**	**44.44%**	**287**	**82**	**28.57%**

Unlicensed Drivers

	Fatalities	No Safety Belts	Percentage	Disabling Injuries	No Safety Belts	Percentage
2001	10	6	60.00%	53	26	49.06%
2002	10	8	80.00%	48	21	43.75%
2003	19	13	68.42%	69	40	57.97%
Total	**39**	**27**	**69.23%**	**170**	**87**	**51.18%**

Central Region Summary

Total Fatalities	
Year	Number
2001	114
2002	135
2003	142
Total	**391**

Total Disabling Injuries	
Year	Number
2001	779
2002	782
2003	830
Total	**2,391**

Run-Off-Road Collisions

	Fatalities	Disabling Injuries
2001	52	322
2002	63	333
2003	61	365
Total	**176**	**1,020**

Head-On Collisions

	Fatalities	Disabling Injuries
2001	22	100
2002	15	75
2003	26	107
Total	**63**	**282**

Collisions w/Trees

	Fatalities	Disabling Injuries
2001	10	58
2002	22	94
2003	24	117
Total	**56**	**269**

Unsignalized Intersection Collisions

	Fatalities	Disabling Injuries
2001	7	68
2002	12	61
2003	14	85
Total	**33**	**214**

Unlicensed Drivers

	Fatalities	Disabling Injuries
2001	10	53
2002	10	48
2003	19	69
Total	**39**	**170**

Commercial Vehicles

	Fatalities	Disabling Injuries
2001	12	60
2002	17	54
2003	29	65
Total	**58**	**179**

No Safety Belts

	Fatalities	Disabling Injuries
2001	56	294
2002	86	323
2003	81	332
Total	**223**	**949**

Older Drivers

(65-75 years old)

	Fatalities	Disabling Injuries
2001	4	23
2002	5	23
2003	3	30
Subtotal	12	76

(76+ years old)

2001	7	10
2002	5	15
2003	6	22
Subtotal	18	47
Total	**30**	**123**

Aggressive Driving Collisions

(Speed Exceeded Limit)

	Fatalities	Disabling Injuries
2001	19	40
2002	22	64
2003	15	50
Subtotal	56	154

(Too Fast for Conditions)

	Fatalities	Disabling Injuries
2001	22	169
2002	44	220
2003	37	257
Subtotal	103	646

(Following Too Close)

	Fatalities	Disabling Injuries
2001	0	39
2002	3	33
2003	4	40
Subtotal	7	112
Total	**166**	**912**

Pedestrian

	Fatalities	Disabling Injuries
2001	6	19
2002	7	19
2003	4	21
Total	**17**	**59**

Utility Poles

	Fatalities	Disabling Injuries
2001	1	7
2002	1	18
2003	1	17
Total	**3**	**42**

Signalized Intersection Collisions

	Fatalities	Disabling Injuries
2001	1	49
2002	1	33
2003	0	15
Total	**2**	**97**

Horizontal Curves

	Fatalities	Disabling Injuries
2001	40	274
2002	60	274
2003	56	293
Total	**156**	**841**

Motorcyclists

	Fatalities	Disabling Injuries
2001	6	47
2002	6	57
2003	7	47
Total	**19**	**151**

Work-Zone

	Fatalities	Disabling Injuries
2001	0	2
2002	2	9
2003	1	1
Total	**3**	**12**

Bicyclists

	Fatalities	Disabling Injuries
2001	1	3
2002	1	4
2003	1	8
Total	**3**	**15**

Distracted/Fatigued Drivers

	Fatalities	Disabling Injuries
2001	56	472
2002	25	179
2003	31	231
Total	**112**	**882**

Head-On Crashes on Interstate

	Fatalities	Disabling Injuries
2001	2	5
2002	0	4
2003	6	7
Total	**8**	**16**

Young Driver Fatalities

(<21 years old)

	Fatalities	Disabling Injuries
2001	19	127
2002	20	97
2003	24	104
Total	**63**	**328**

Alcohol

	Fatalities	Disabling Injuries
2001	32	150
2002	32	148
2003	32	135
Total	**96**	**433**

For more information contact:
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